Chapter

1

Managing Data Lists

Excel has some excellent features that make working with lists easy. Lists of records can be sorted, searched and filtered to produce useful information.

Good Byer Stores Australia Ltd
Inventory - Whitegoods department

Name	Code	Supplier	Cost	No on Hand	Value	Retail Price
Kettle	AZ1	Moulinex	$ 35	10	$ 350	$ 55.00
Toaster	9206	Russell Hobbs	$ 40	12	$ 480	$ 69.95
Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95
Toaster	CJ9	Moulinex	$ 35	12	$ 420	$ 47.95
Breadmaker	BM200	Remington	$ 100	5	$ 500	$ 169.00
Breadmaker	BM4600	Sunbeam	$ 110	6	$ 660	$ 179.00
Kettle	KE217	Sunbeam	$ 28	9	$ 252	$ 39.95
Griller	BT2500	Sunbeam	$ 50	3	$ 150	$ 75.00
Microwave	EMX470	Sanyo	$ 200	4	$ 800	$ 279.00
Microwave	6AVM350	Whirlpool	$ 300	2	$ 600	$ 479.00
Microwave	M965	Samsung	$ 180	5	$ 900	$ 239.00
Iron	HI540	Philips	$ 55	5	$ 275	$ 99.00

Objectives

In this module you will do the following using Microsoft Excel:

- Construct a List
- Sort Data
- Filter Data
- Use Advanced Filters
- Apply Subtotals
- Work with Outlines
- Create a Pivot Table

1. Open the **Lists** workbook from your student files

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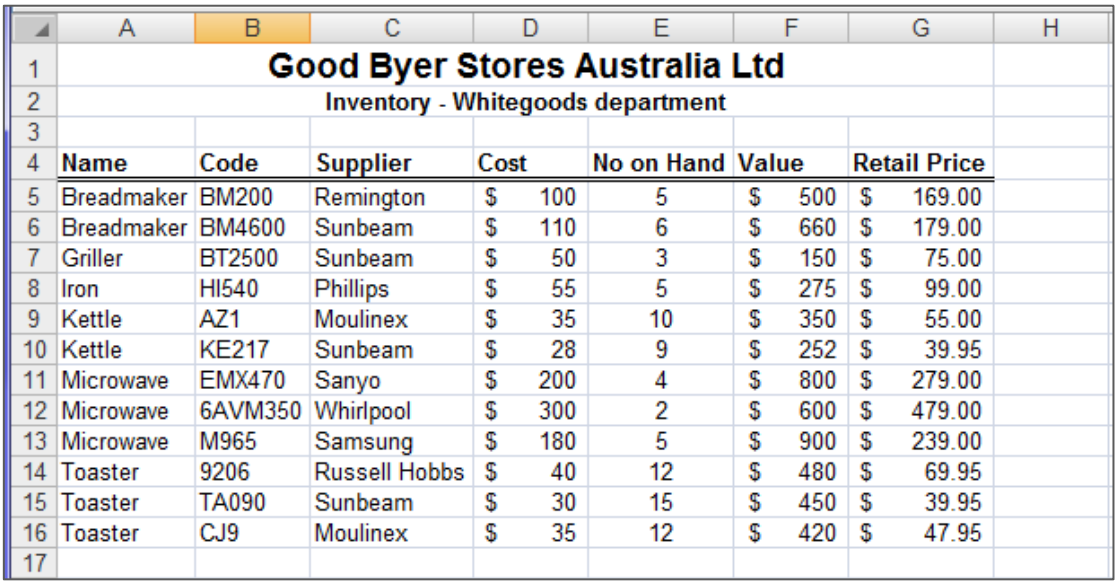
Tips for Creating Data Lists

Keep the following points in mind when creating a data list, or rearranging data to create a data list.

- Use column labels in the first row to act as field names
- Organise the data so that each column contains the same type of data
- Format the column labels so they are easily identified
- Use a border instead of a blank row to separate the labels from the data
- Have only one list per worksheet
- Leave a blank column and row around the perimeter of the list so that any other data on the worksheet is not confused with, and included in, the list
- Do not have any blank rows or columns within the list so data is not left out
- Do not put any data to the right or left of the list



	A	B	C	D	E	F	G	H
1	**Good Byer Stores Australia Ltd**							
2	**Inventory - Whitegoods department**							
3								
4	**Name**	**Code**	**Supplier**	**Cost**	**No on Hand**	**Value**	**Retail Price**	
5	Breadmaker	BM200	Remington	$ 100	5	$ 500	$ 169.00	
6	Breadmaker	BM4600	Sunbeam	$ 110	6	$ 660	$ 179.00	
7	Griller	BT2500	Sunbeam	$ 50	3	$ 150	$ 75.00	
8	Iron	HI540	Phillips	$ 55	5	$ 275	$ 99.00	
9	Kettle	AZ1	Moulinex	$ 35	10	$ 350	$ 55.00	
10	Kettle	KE217	Sunbeam	$ 28	9	$ 252	$ 39.95	
11	Microwave	EMX470	Sanyo	$ 200	4	$ 800	$ 279.00	
12	Microwave	6AVM350	Whirlpool	$ 300	2	$ 600	$ 479.00	
13	Microwave	M965	Samsung	$ 180	5	$ 900	$ 239.00	
14	Toaster	9206	Russell Hobbs	$ 40	12	$ 480	$ 69.95	
15	Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95	
16	Toaster	CJ9	Moulinex	$ 35	12	$ 420	$ 47.95	
17								

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Sorting

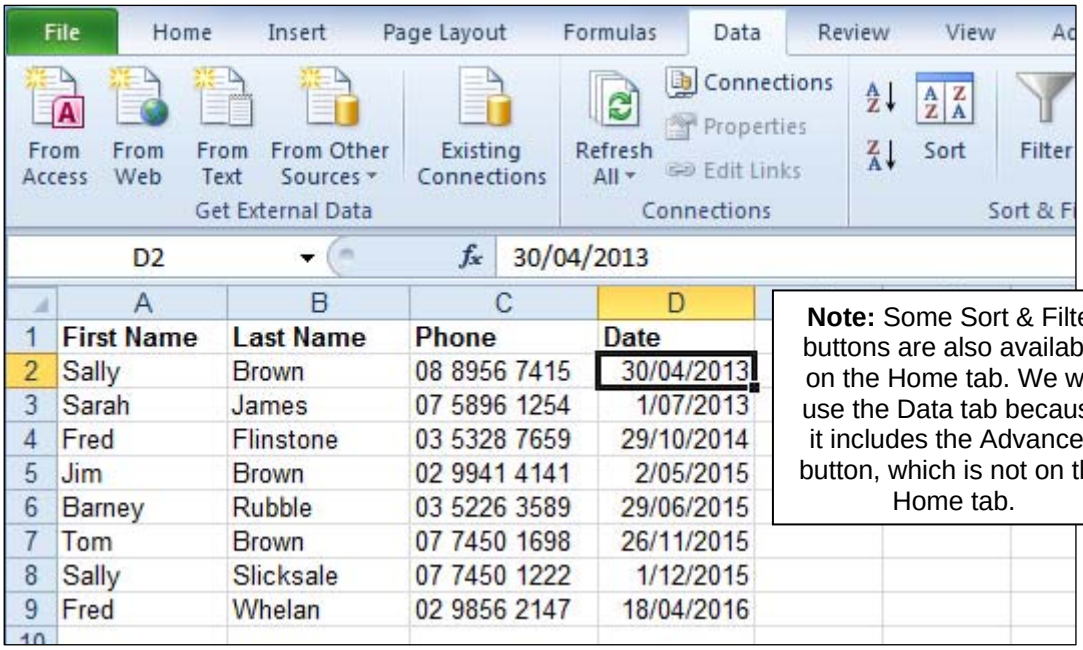
The ability to find and manipulate information easily and efficiently is one of the major purposes of a database. Excel provides you with a number of tools that you can use to sort lists and find data.

Data can be quickly sorted into simple **Ascending** or **Descending** order using buttons on the ribbon.

Each affected row is moved and sorted, retaining the whole record as a complete row.

When sorting a list DO NOT select a whole column - only select one cell otherwise the data will be scrambled.

2. Open the **Lists** workbook from your student files
3. Check the **Sales staff** worksheet is displayed
4. Click on cell **A2** within the list
5. Click the tab **Data** ➢ **Sort A to Z**, the list will be sorted in alphabetical order by first name
6. Click on cell **D2**
7. Click on **Data** ➢ **Sort Z to A** button, the list will sorted in descending order by date
8. Click the tab **Data** ➢ **Sort A to Z**, the list will be sorted in ascending order by date



	A	B	C	D
1	First Name	Last Name	Phone	Date
2	Sally	Brown	08 8956 7415	30/04/2013
3	Sarah	James	07 5896 1254	1/07/2013
4	Fred	Flinstone	03 5328 7659	29/10/2014
5	Jim	Brown	02 9941 4141	2/05/2015
6	Barney	Rubble	03 5226 3589	29/06/2015
7	Tom	Brown	07 7450 1698	26/11/2015
8	Sally	Slicksale	07 7450 1222	1/12/2015
9	Fred	Whelan	02 9856 2147	18/04/2016

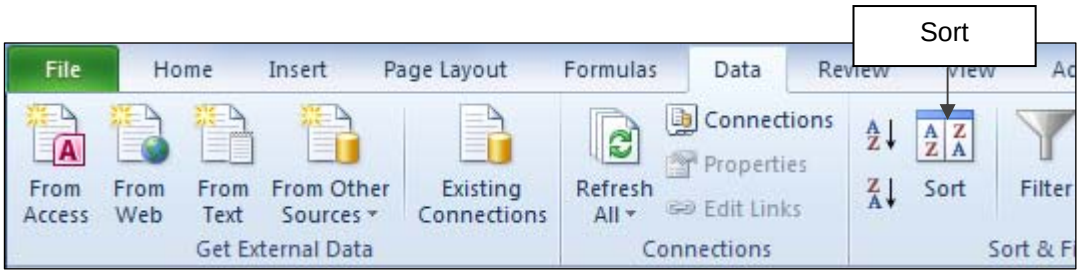
Note: Some Sort & Filter buttons are also available on the Home tab. We will use the Data tab because it includes the Advanced button, which is not on the Home tab.

Conditional Sorting

The **Conditional Sorting** method enables you to arrange your data in a customised manner. For example, if you want to sort the data by **Last Name** and then by **First Name,** when more than one record has the same last name.

1. Click on the **Sales staff** worksheet and click on any cell within the list

2. Click on the tab **Data** ➢ **Sort**

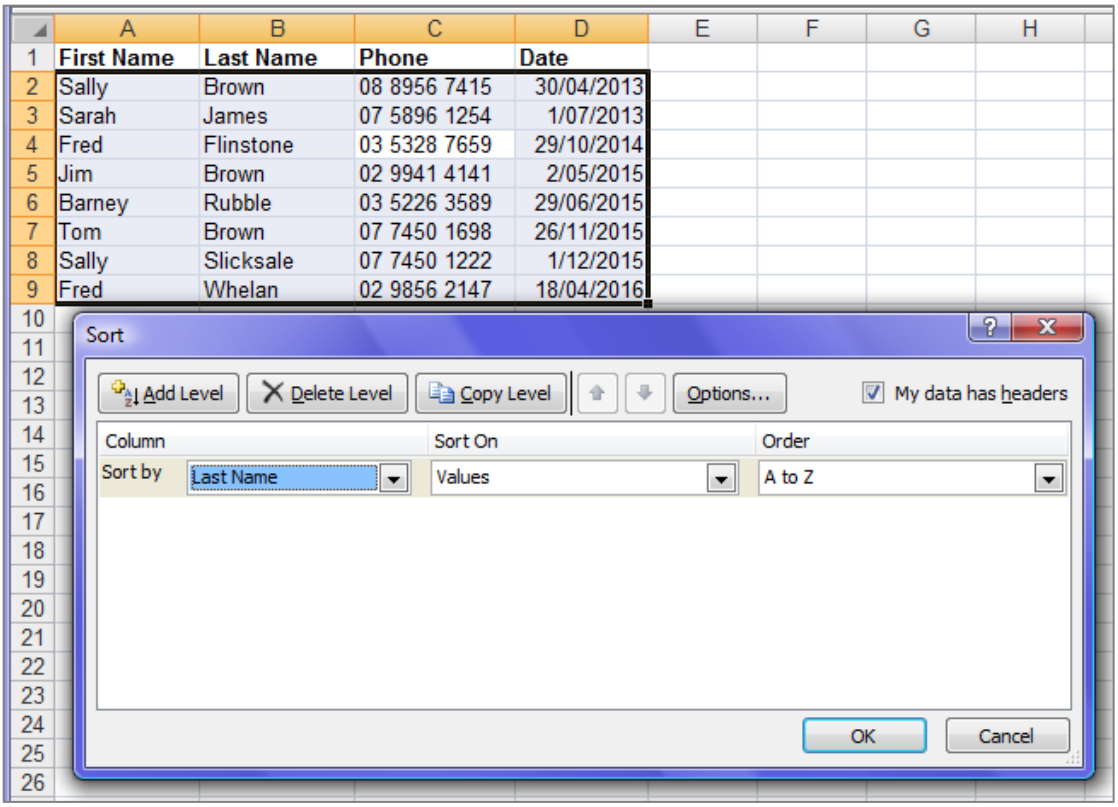


The **Sort** dialog box is displayed as shown below and the entire list has been selected. Notice that the header row in the table is not selected because Excel has assumed the first row is a heading row.

3. Click on the droplist button of the **Sort by** box to display the list of headings

4. Click on **Last Name** to choose it from the list

5. Check that **A to Z** appears in **Order**



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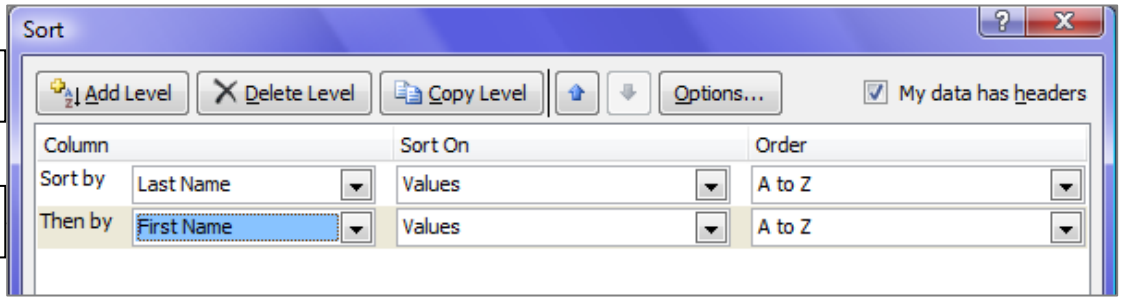
6. Click on the **Add Level** button
7. Click on the **Then by** drop list arrow
8. Click on **First Name**
9. Check **A to Z** is selected in Order

Add Level

Then by



This selection will sort the records by their **Last Name** and then their **First Name** where the last name is identical.

10. Click on **OK** to view the sorted list

	A	B	C	D
1	**First Name**	**Last Name**	**Phone**	**Date**
2	Jim	Brown	02 9941 4141	2/05/2015
3	Sally	Brown	08 8956 7415	30/04/2013
4	Tom	Brown	07 7450 1698	26/11/2015
5	Fred	Flinstone	03 5328 7659	29/10/2014
6	Sarah	James	07 5896 1254	1/07/2013
7	Barney	Rubble	03 5226 3589	29/06/2015
8	Sally	Slicksale	07 7450 1222	1/12/2015
9	Fred	Whelan	02 9856 2147	18/04/2016
10				

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Practice Exercise 1.1: Sort a List

In this exercise you will practice using the **Sort** buttons to organise the data in the Inventory list.

1. Click on the **Inventory** worksheet in the **Lists** file
2. Sort alphabetically by **Supplier**
3. Sort by **Retail Price** from lowest price to highest price
4. Sort by product **Name** then by **Retail Price –** your inventory list should appear as shown below

	A	B	C	D	E	F	G
1	**Good Byer Stores Australia Ltd**						
2	**Inventory - Whitegoods department**						
3							
4	**Name**	**Code**	**Supplier**	**Cost**	**No on Hand**	**Value**	**Retail Price**
5	Breadmaker	BM200	Remington	$ 100	5	$ 500	$ 169.00
6	Breadmaker	BM4600	Sunbeam	$ 110	6	$ 660	$ 179.00
7	Griller	BT2500	Sunbeam	$ 50	3	$ 150	$ 75.00
8	Iron	HI540	Phillips	$ 55	5	$ 275	$ 99.00
9	Kettle	KE217	Sunbeam	$ 28	9	$ 252	$ 39.95
10	Kettle	AZ1	Moulinex	$ 35	10	$ 350	$ 55.00
11	Microwave	M965	Samsung	$ 180	5	$ 900	$ 239.00
12	Microwave	EMX470	Sanyo	$ 200	4	$ 800	$ 279.00
13	Microwave	6AVM350	Whirlpool	$ 300	2	$ 600	$ 479.00
14	Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95
15	Toaster	CJ9	Moulinex	$ 35	12	$ 420	$ 47.95
16	Toaster	9206	Russell Hobbs	$ 40	12	$ 480	$ 69.95
17							

Practice Exercise 1.2: Create a New Database List and Sort

In this exercise you will create your own list. You can use your own items, e.g. family member details, product details, sporting club memberships, etc.

1. Click on a blank worksheet
2. Create a list of your own that contains at least **five** fields (columns)
3. Enter **five** records
4. Double click on the sheet tab and type **Custom List** to give the worksheet a name
5. Click back onto the worksheet
6. Save the file when finished
7. Sort the records by each of the columns

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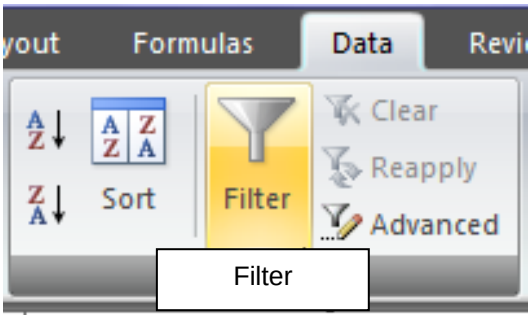
Filter a Data List

The **Filter** feature enables you to view only those records that match your criteria. This is especially handy when you have a large number of records.

Filter a List

Suppose you want to display only those records with the last name **Brown**

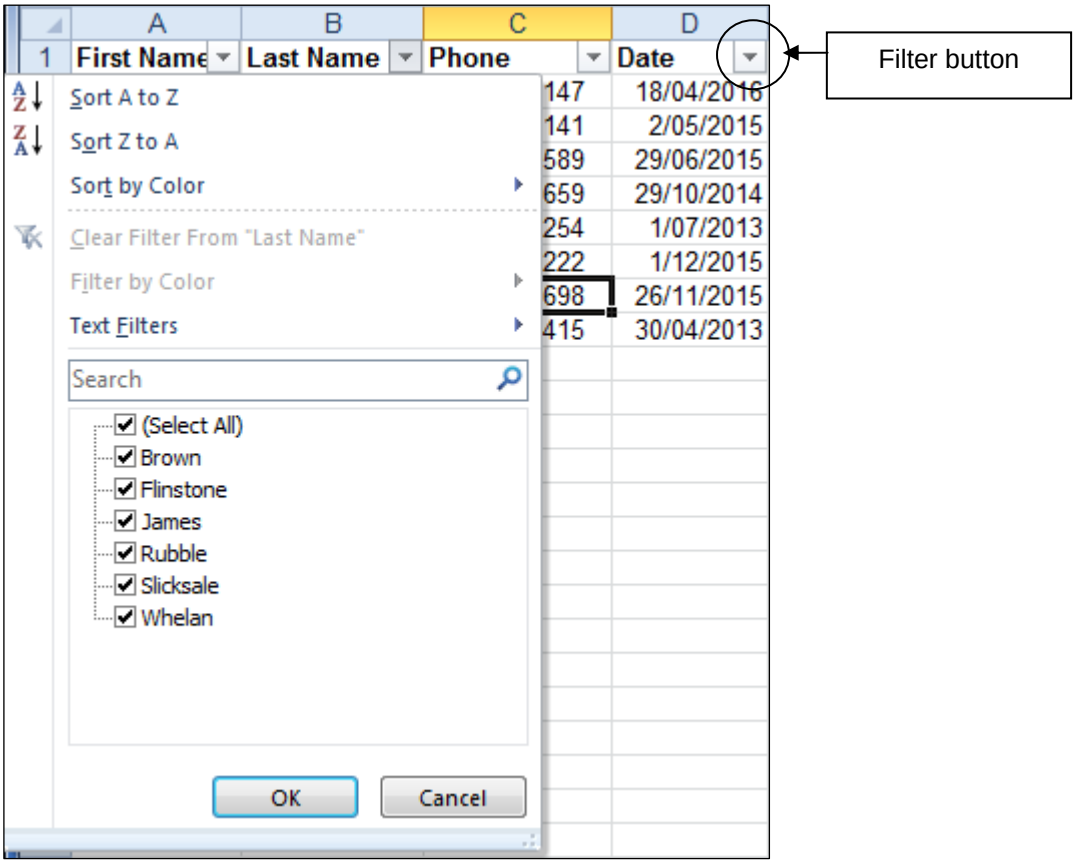
1. Click on the **Sales staff** worksheet and click on any cell within the list area
2. Click on the tab **Data ➢ Filter**



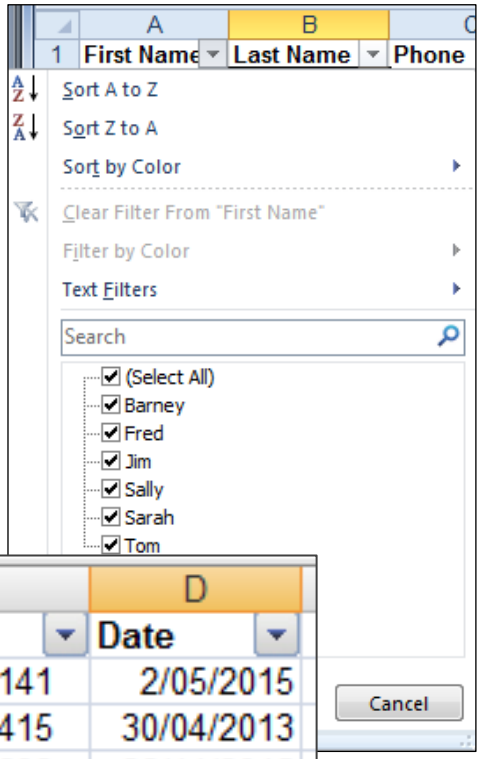
The records will now be displayed as shown below, with **Filter** buttons appearing for each field. The **Filter** buttons display lists which contain options by which you can filter the data.

3. Click on the **Filter** button for each field to see the options available

The picture below shows the **Filtering Criteria** available for **First Name.**



Suppose we want to display only those records where the last name is **Brown.**



4. Click the **Filter** button for the **Last Name** field which is to be filtered
5. Click on the **Select All** button to remove the tick
6. Click on **Brown** so a tick appears
7. Click on **OK**

The **Filter** symbol appears next to the filtered list – this is to show the user that this information is currently filtered using this field.

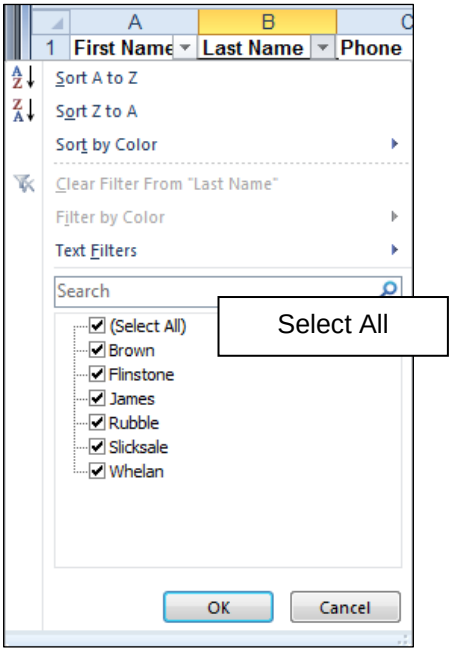
	A	B	C	D
1	First Name	Last Name	Phone	Date
2	Jim	Brown	02 9941 4141	2/05/2015
3	Sally	Brown	08 8956 7415	30/04/2013
4	Tom	Brown	07 7450 1698	26/11/2015
10				

Your records are now filtered as shown above.

Show all Data

To remove a filter that has been applied is simple.

1. Click on the **Last Name** filter button and choose **(Select All)** to display all the records again
2. Click on **OK**
3. Repeat this process of filtering on some of the other fields, finishing with all records displayed



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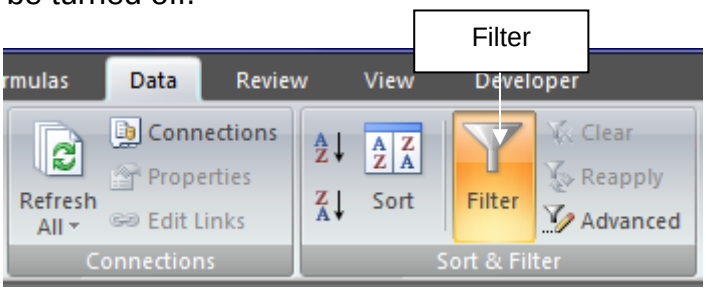
Turn the Filter Off

When finished the filter buttons can be turned off.

1. Click the tab **Data ➢ Filter**

This will turn the filter off.



Practice Exercise 1.3: Filtering Lists

1. Click on the **Inventory** worksheet
2. Use the **Filter** button to display only the products supplied by **Sunbeam**

	A	B	C	D	E	F	G
1	Good Byer Stores Australia Ltd						
2	Inventory - Whitegoods department						
3							
4	Name	Code	Supplie	Cost	No on I	Value	Retail p ce
6	Breadmaker	BM4600	Sunbeam	$ 110	6	$ 660	$ 179.00
7	Griller	BT2500	Sunbeam	$ 50	3	$ 150	$ 75.00
10	Kettle	KE217	Sunbeam	$ 28	9	$ 252	$ 39.95
16	Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95

3. Display **All** records by clicking on the **Filter** button to turn the filter off

Practice Exercise 1.4: Filter Your Custom List

1. Click on the **Custom List** worksheet you created in exercise **1.2** on page **6**
2. Experiment with **Filtering** on your own list

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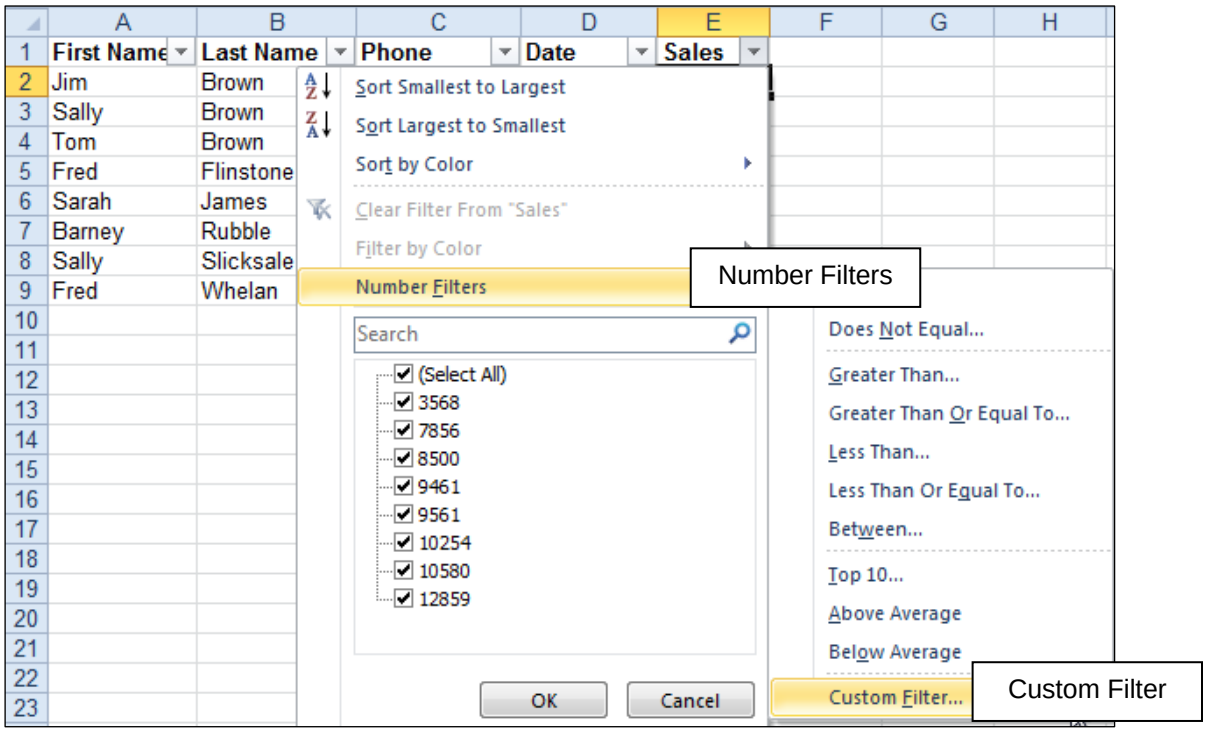
Set a Custom Filter

Suppose you wanted to show a group of records e.g. **Sales greater than 10000**, you can set a **Custom Filter.**

1. Click on **Sales staff** sheet and click on any cell within the list
2. Add a new field for **Sales** and enter the data as shown below

	A	B	C	D	E
1	**First Name**	**Last Name**	**Phone**	**Date**	**Sales**
2	Jim	Brown	02 9941 4141	2/05/2015	9561
3	Sally	Brown	08 8956 7415	30/04/2013	3568
4	Tom	Brown	07 7450 1698	26/11/2015	10254
5	Fred	Flinstone	03 5328 7659	29/10/2014	12859
6	Sarah	James	07 5896 1254	1/07/2013	7856
7	Barney	Rubble	03 5226 3589	29/06/2015	9461
8	Sally	Slicksale	07 7450 1222	1/12/2015	8500
9	Fred	Whelan	02 9856 2147	18/04/2016	10580

3. Click on a cell within the list and click on the tab **Data ➢ Filter**
4. Click on the **Filter** button for **Sales**
5. Click on **Number Filters ➢ Custom Filter**



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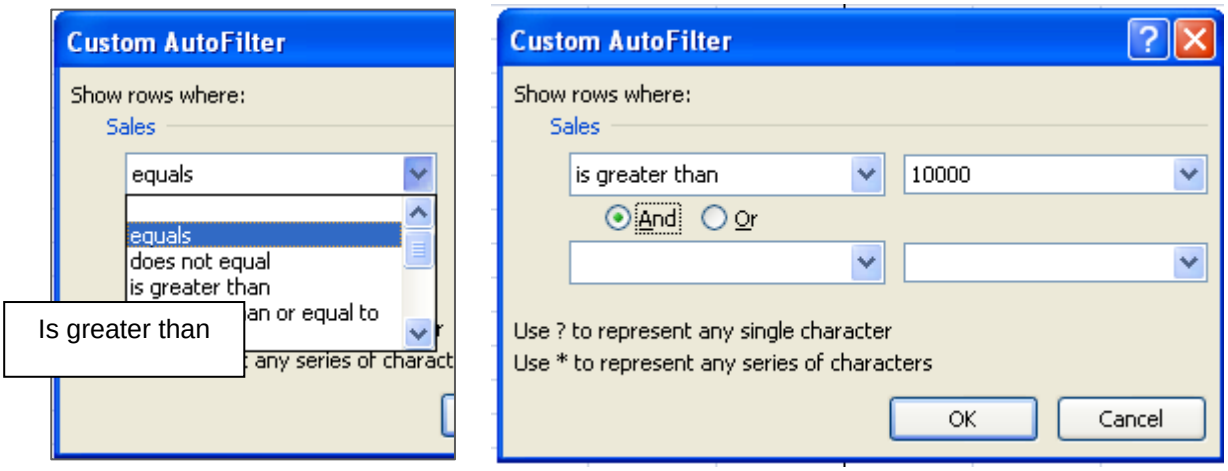
The **Custom Filter** window will appear.

6. Click on the droplist button for the first box

The possible operators will be displayed.

7. Click on **is greater than**

8. Click in the next box and type **10000**

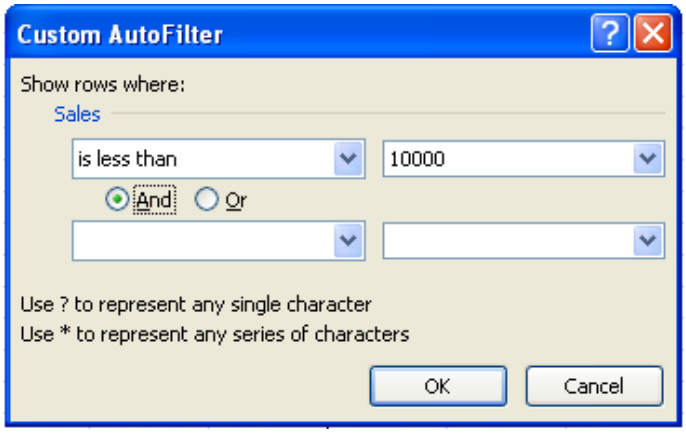


9. Click on the **OK** button

Notice that only the records for sales greater than **10000** are displayed. Notice also that the Filter button for **Sales** has a small filter symbol to indicate that the filter is applied to this field.

	A	B	C	D	E
1	First Name	Last Name	Phone	Date	Sales
4	Tom	Brown	07 7450 1698	26/11/2015	10254
5	Fred	Flinstone	03 5328 7659	29/10/2014	12859
9	Fred	Whelan	02 9856 2147	18/04/2016	10580

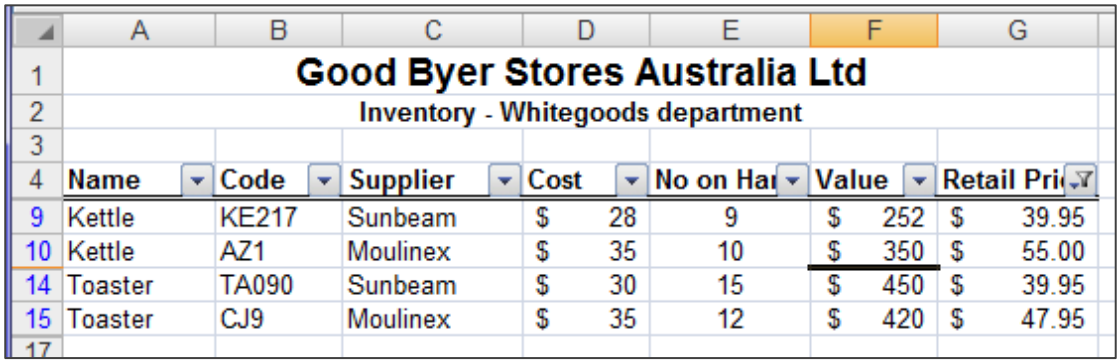
10. Repeat for **Sales less than 10000**



11. Display **All records**

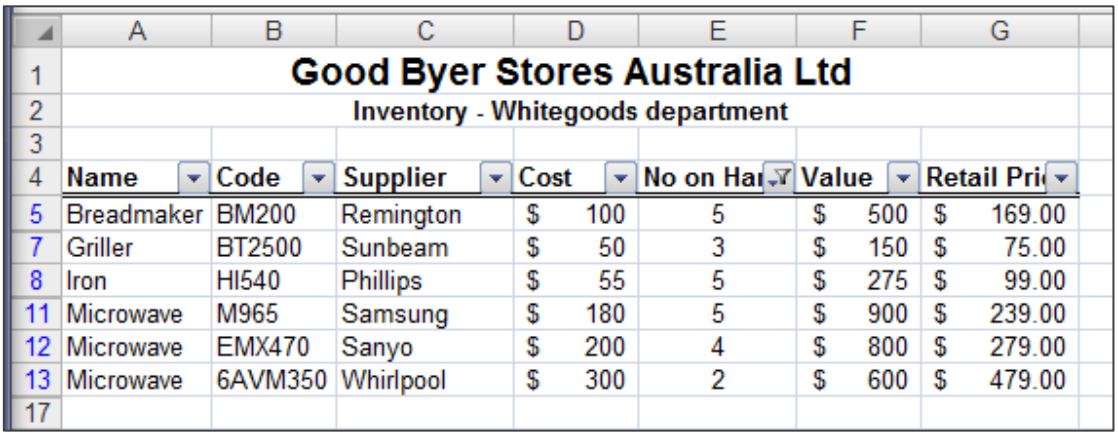
Practice Exercise 1.5: Set a Custom Filter

1. Click on the **Inventory** sheet
2. Use the **Custom Filter** to display only those products with a **retail price less than $60**



	A	B	C	D	E	F	G
1	Good Byer Stores Australia Ltd						
2	Inventory - Whitegoods department						
3							
4	Name	Code	Supplier	Cost	No on Hai	Value	Retail Pri
9	Kettle	KE217	Sunbeam	$ 28	9	$ 252	$ 39.95
10	Kettle	AZ1	Moulinex	$ 35	10	$ 350	$ 55.00
14	Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95
15	Toaster	CJ9	Moulinex	$ 35	12	$ 420	$ 47.95
17							

3. Display those products where the **number on hand** is **less than or equal to 5**



	A	B	C	D	E	F	G
1	Good Byer Stores Australia Ltd						
2	Inventory - Whitegoods department						
3							
4	Name	Code	Supplier	Cost	No on Hai	Value	Retail Pri
5	Breadmaker	BM200	Remington	$ 100	5	$ 500	$ 169.00
7	Griller	BT2500	Sunbeam	$ 50	3	$ 150	$ 75.00
8	Iron	HI540	Phillips	$ 55	5	$ 275	$ 99.00
11	Microwave	M965	Samsung	$ 180	5	$ 900	$ 239.00
12	Microwave	EMX470	Sanyo	$ 200	4	$ 800	$ 279.00
13	Microwave	6AVM350	Whirlpool	$ 300	2	$ 600	$ 479.00
17							

4. Display **All** records again by clicking on the **Filter** button on the ribbon

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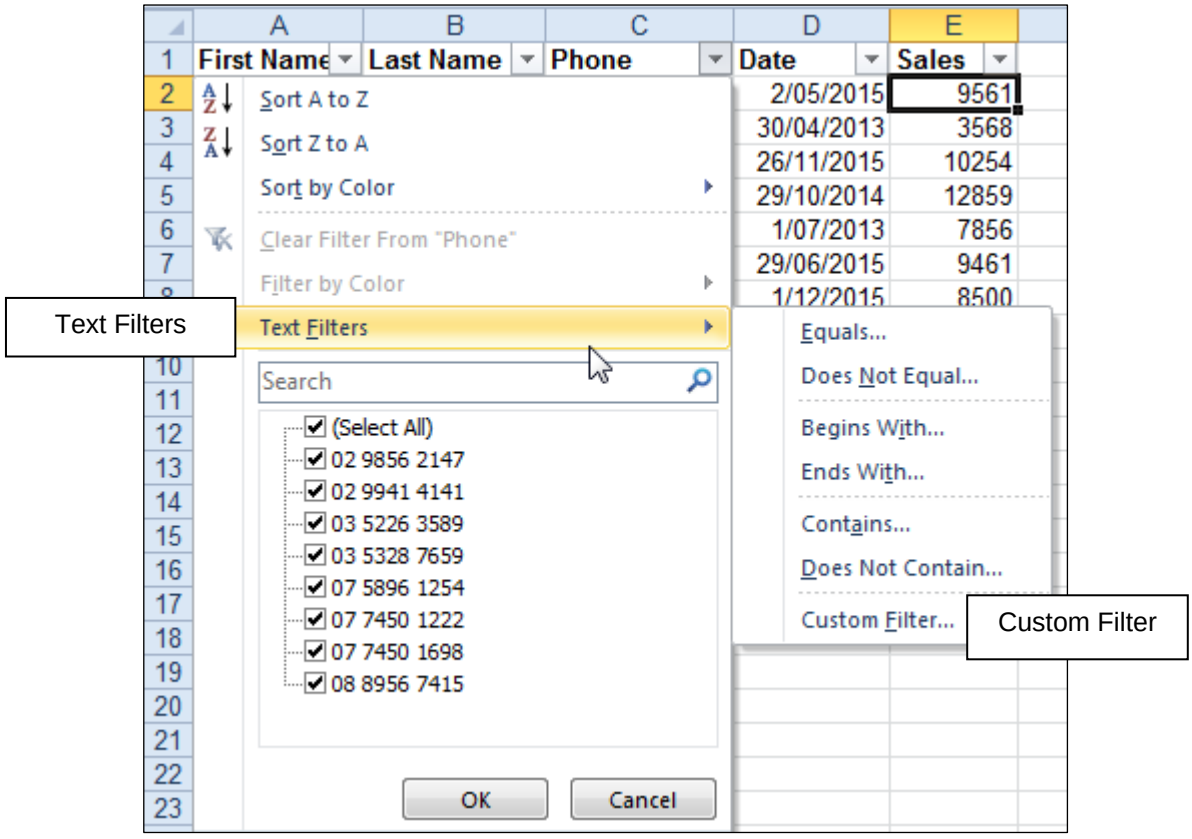
Using Wildcards in Filtering

Wildcards can be utilised if not all of the information is known, or a range of data is required. There are two wildcards, the ? and the ✸. The **?** is used in place of just one character, while the ✸ is used for a string of unknown characters.

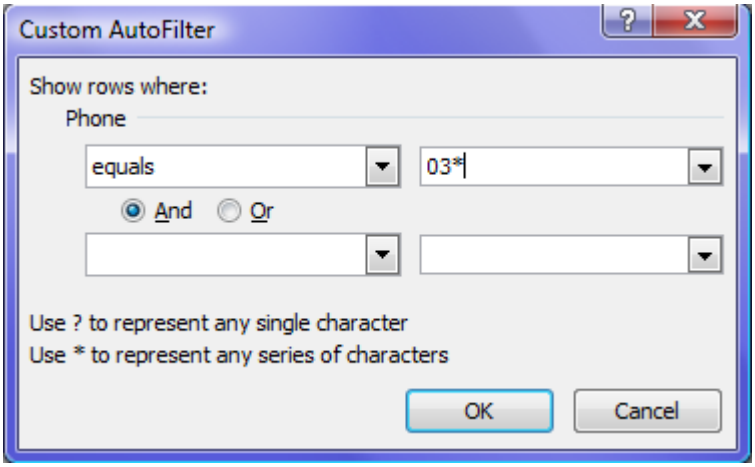
For example if we wanted a list of all phone numbers beginning with **03** then we would use the following **Custom Filter** setup.

1. Click on the **Sales staff** worksheet
2. Click anywhere in the list
3. Click on the tab **Data** ➢ **Filter** to turn on the filter if necessary
4. Click on the **Filter** button for **Phone**
5. Click on **Text Filters** ➢ **Custom Filter**



The **Custom AutoFilter** window will appear.

6. Click in the second box and type **03***
7. Click on **OK**



This will bring up a list of all records with phone numbers that begin with 03.

	A	B	C	D	E
1	First Name	Last Name	Phone	Date	Sales
5	Fred	Flinstone	03 5328 7659	29/10/2014	12859
7	Barney	Rubble	03 5226 3589	29/06/2015	9461

8. Click on the **Filter** button in the ribbon to remove the filter and display all records

Practice Exercise 1.6: Use a Wildcard in Filtering

1. Click on the **Inventory** worksheet
2. Use the **Custom** filter to display products from supplier **Mol something**….. can't remember the spelling so use **Equals** and **Mo***

	A	B	C	D	E	F	G
1	Good Byer Stores Australia Ltd						
2	Inventory - Whitegoods department						
3							
4	Name	Code	Supplier	Cost	No on Hai	Value	Retail
9	Kettle	AZ1	Moulinex	$ 35	10	$ 350	$ 55.00
16	Toaster	CJ9	Moulinex	$ 35	12	$ 420	$ 47.95

3. Click on the **Filter** button in the ribbon to remove the filter and display all records
4. Leave the file open when finished, it will be used in the next section

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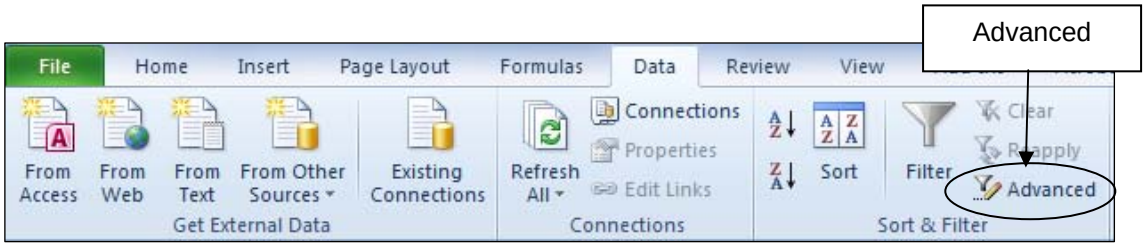
Advanced Filters

Advanced Filters can be used when there is more than one criteria. For example, looking for products from two different suppliers, or a particular product from a specific supplier.

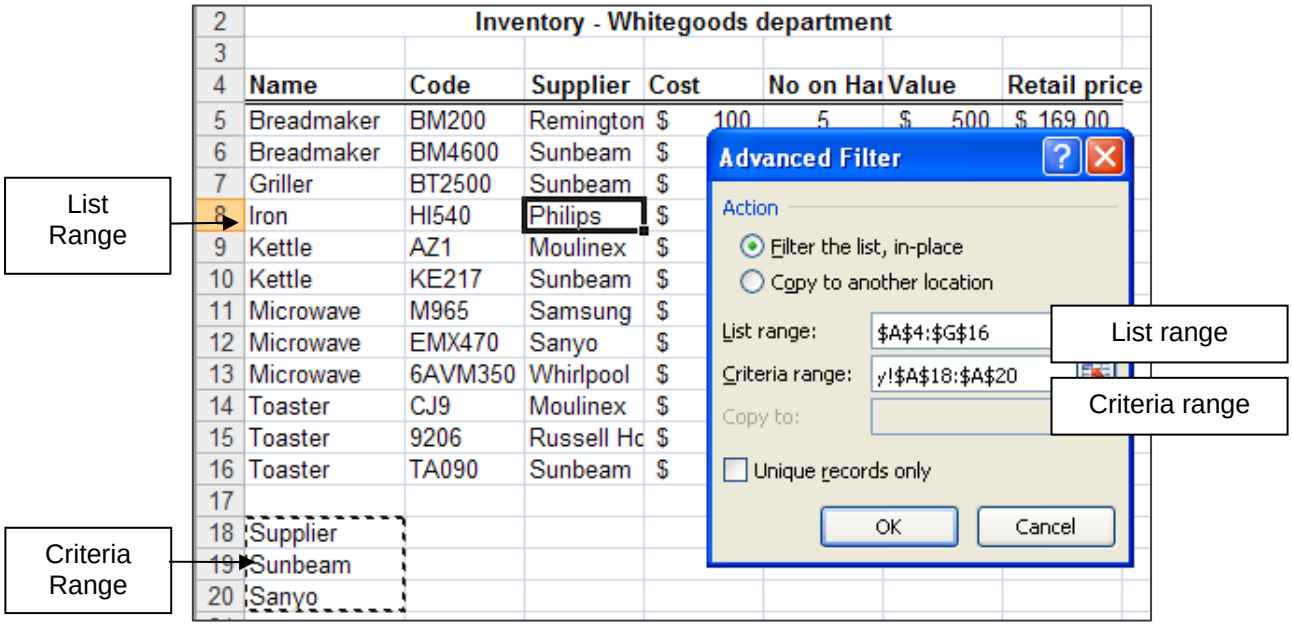
Several Conditions in One Column

More than one condition can be applied to a column. To do this you must set up the criteria on the spreadsheet below the list.

1. Click on the **Inventory** worksheet in the **Lists** file
2. In cell **A18** type the field name **Supplier**
3. Type the suppliers you are looking for **Sunbeam** in cell **A19** and **Sanyo** in cell **A20**
4. Click on any cell in the main list
5. Click on the tab **Data ➢ Advanced** in the **Sort & Filter** group



The **Advanced Filter** dialog box will appear with the range of the list already in it.



6. Click in the **Criteria Range** box and then highlight the **Filter** cells **A18:A20**
7. Click on **OK**

The list will be reduced to display only those records for the Suppliers Sunbeam and Sanyo as shown below.

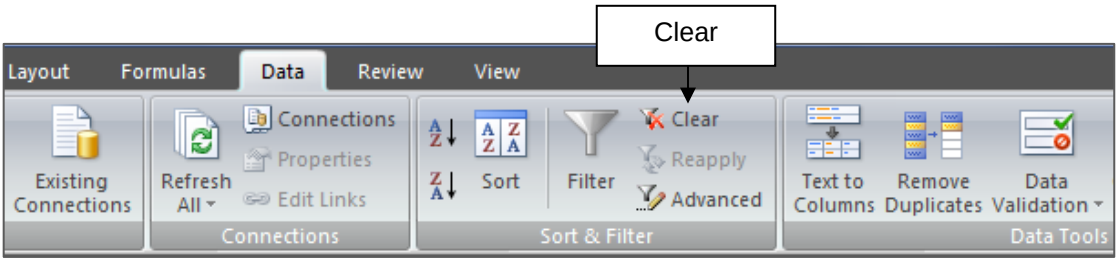
Row labels are now blue to indicate they have been filtered.

	A	B	C	D	E	F	G
1	Good Byer Stores Australia Ltd						
2	Inventory - Whitegoods department						
3							
4	Name	Code	Supplier	Cost	No on Hai	Value	Retail price
6	Breadmaker	BM4600	Sunbeam	$ 110	6	$ 660	$ 179.00
7	Griller	BT2500	Sunbeam	$ 50	3	$ 150	$ 75.00
10	Kettle	KE217	Sunbeam	$ 28	9	$ 252	$ 39.95
12	Microwave	EMX470	Sanyo	$ 200	4	$ 800	$ 279.00
16	Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95
17							
18	Supplier						
19	Sunbeam						
20	Sanyo						

The **Advanced Filter** uses the criteria list to select records that match the criteria. In this case the **Field** in the criteria was **Supplier** and the **criteria** were **Sunbeam** and **Sanyo**. So the **Advanced Filter** selects records that have either Sunbeam or Sanyo in the Supplier field.

Remove an Advanced Filter

1. Click on the tab **Data** ➢ **Clear** in the **Sort & Filter** group



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Practice Exercise 1.7: Use an Advanced Filter

In this exercise you will enter another set of criteria, this time to display all toasters and breadmakers.

2. Click into to cell **A18** and type **Name**
3. Click into cell **A19** and type **Toaster** then cell **A20** and type **Breadmaker**
4. Click on a cell in the list
5. Click on the tab **Data** ➢ **Advanced** in the **Sort & Filter** group
6. Click on **OK**

	A	B	C	D	E	F	G
1	**Good Byer Stores Australia Ltd**						
2	**Inventory - Whitegoods department**						
3							
4	**Name**	**Code**	**Supplier**	**Cost**	**No on Hai**	**Value**	**Retail price**
5	Breadmaker	BM200	Remington	$ 100	5	$ 500	$ 169.00
6	Breadmaker	BM4600	Sunbeam	$ 110	6	$ 660	$ 179.00
14	Toaster	CJ9	Moulinex	$ 35	12	$ 420	$ 47.95
15	Toaster	9206	Russell Hc	$ 40	12	$ 480	$ 69.95
16	Toaster	TA090	Sunbeam	$ 30	15	$ 450	$ 39.95
17							
18	Name						
19	Toaster						
20	Breadmaker						

7. Click on the tab **Data** ➢ **Clear** to clear the filter

Criteria from more than One Column

The criteria for the filter can be based on more than column or field. For example, with a list of houses at a Real Estate agency, finding houses in a particular price range quickly is easy with the **advanced filter** feature.

1. Click on the **Home** worksheet in the **Lists** file

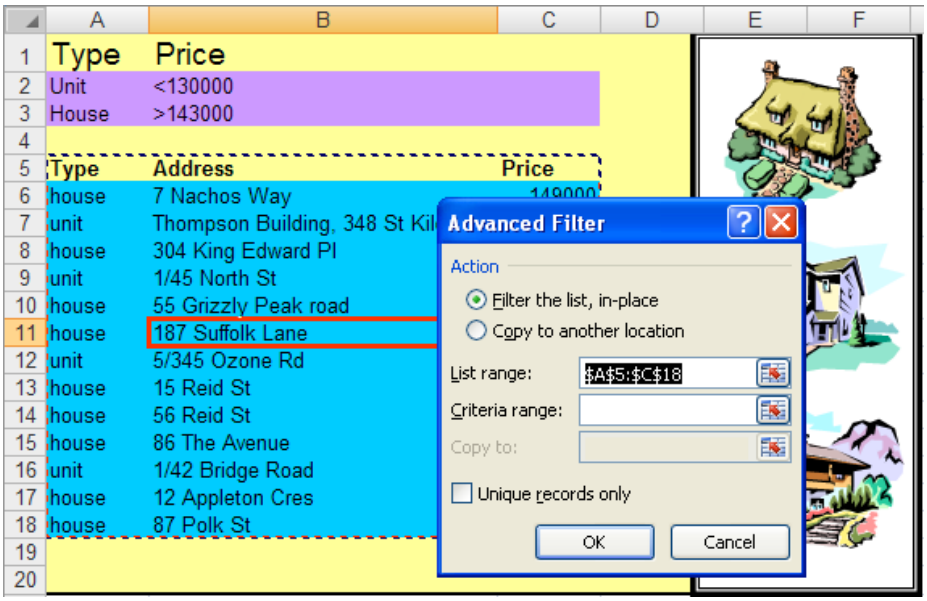
The worksheet should appear as shown below.

Criteria Range
List Area
Type Price
<130000
>143000
Type Address Price
house 7 Nachos Way 149000
unit Thompson Building, 348 St Kilda Rd 129000
house 304 King Edward Pl 156950
unit 1/45 North St 135000
house 55 Grizzly Peak road 159500
house 187 Suffolk Lane 150950
unit 5/345 Ozone Rd 137000
house 15 Reid St 143000
house 56 Reid St 148950
house 86 The Avenue 141000
unit 1/42 Bridge Road 133500
house 12 Appleton Cres 156950
house 87 Polk St 142000

2. Click on any cell in the list area of the worksheet

3. Click on the **Data tab➢ Advanced…**

The **Advanced Filter** box will appear and the list area will be selected as shown below.



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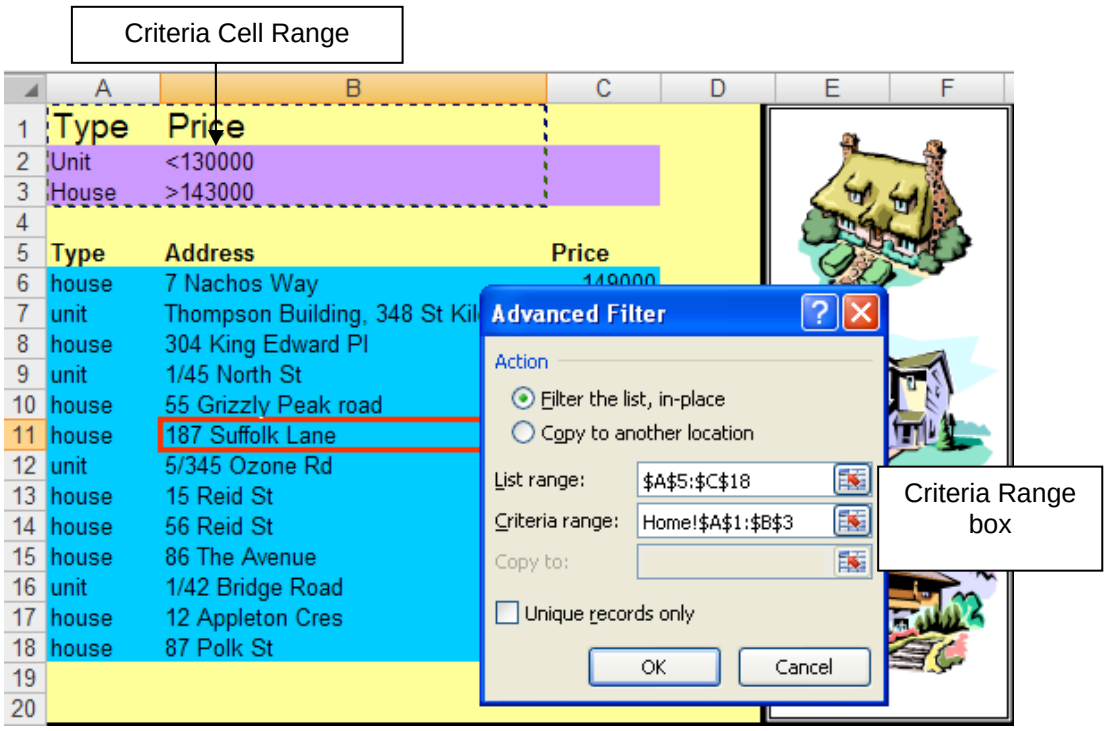
The list range will automatically appear in the box. We must enter the cells for the **Criteria Range**. In this sheet the criteria are already entered. Remember the criteria range includes the headings.

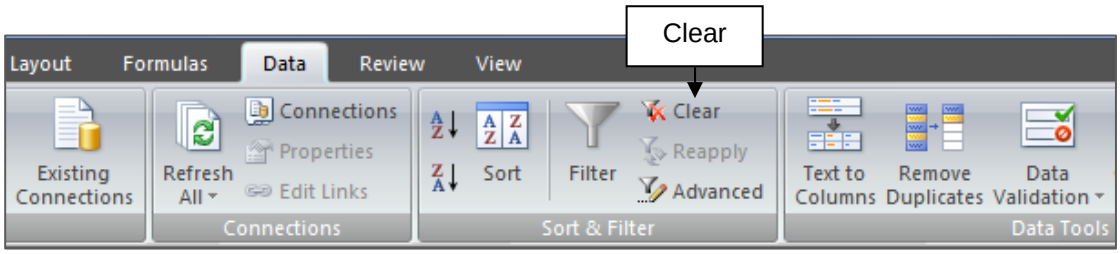
4. Click in the **Criteria range** box
5. Highlight the **Criteria** cell range, **A1 to B3** so it appears in the **Criteria Range** box
6. Click on **OK**



Excel will display units and homes that match the criteria in relation to price.

	A	B	C
1	Type	Price	
2	Unit	<130000	
3	House	>143000	
4			
5	**Type**	**Address**	**Price**
6	house	7 Nachos Way	149000
7	unit	Thompson Building, 348 St Kilda Rd	129000
8	house	304 King Edward Pl	156950
10	house	55 Grizzly Peak road	159500
11	house	187 Suffolk Lane	150950
14	house	56 Reid St	148950
17	house	12 Appleton Cres	156950
19			
20			

7. Click on the tab **Data ➢ Clear** to show a complete list



Practice Exercise 1.8 Advanced Filter

You would now like to look at Units with a price less than $160,000 and Houses greater than $150,000.

1. Click into cell **B2** and type **<160000**

2. Click into cell **B3** and type **>150000**

3. Click on the **Data tab➢ Advanced…**

4. Check the **Criteria Range** box and click on **OK**

	A	B	C
1	Type	Price	
2	Unit	<160000	
3	House	>150000	
4			
5	**Type**	**Address**	**Price**
7	unit	Thompson Building, 348 St Kilda Rd	129000
8	house	304 King Edward Pl	156950
9	unit	1/45 North St	135000
10	house	55 Grizzly Peak road	159500
11	house	187 Suffolk Lane	150950
12	unit	5/345 Ozone Rd	137000
16	unit	1/42 Bridge Road	133500
17	house	12 Appleton Cres	156950
19			

5. Click on the tab **Data ➢ Clear** to show a complete list

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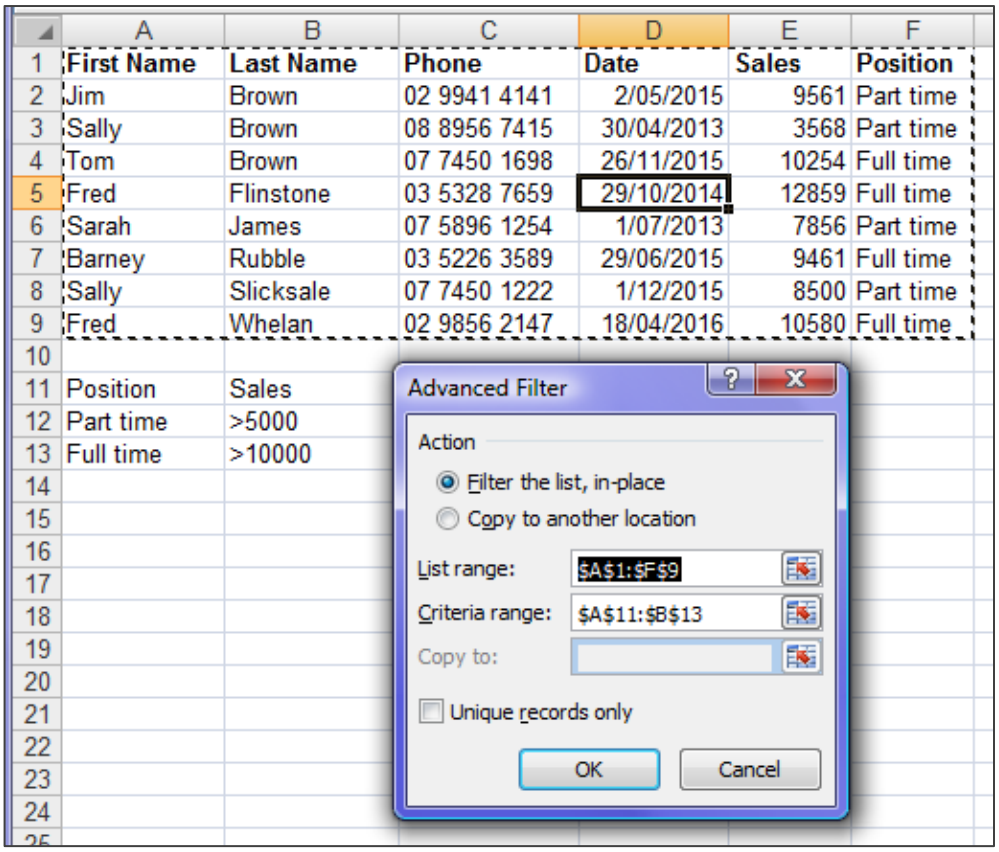
Practice Exercise 1.9: Using Criteria in an Advanced Filter

We will try the whole procedure again on the **Sales staff** worksheet.

1. Click on the **Sales staff** worksheet
2. Enter the new data shown in **column F**
3. Enter the following criteria as shown in cells **A11** to **B13**
4. Click on the tab **Data ➢ Advanced…**
5. Repeat the procedure outlined on the previous pages to filter records according to criteria



	A	B	C	D	E	F
1	First Name	Last Name	Phone	Date	Sales	Position
2	Jim	Brown	02 9941 4141	2/05/2015	9561	Part time
3	Sally	Brown	08 8956 7415	30/04/2013	3568	Part time
4	Tom	Brown	07 7450 1698	26/11/2015	10254	Full time
5	Fred	Flinstone	03 5328 7659	29/10/2014	12859	Full time
6	Sarah	James	07 5896 1254	1/07/2013	7856	Part time
7	Barney	Rubble	03 5226 3589	29/06/2015	9461	Full time
8	Sally	Slicksale	07 7450 1222	1/12/2015	8500	Part time
9	Fred	Whelan	02 9856 2147	18/04/2016	10580	Full time
10						
11	Position	Sales				
12	Part time	>5000				
13	Full time	>10000				

The list should appear as shown. (If it doesn't check all your data entry very carefully)

	A	B	C	D	E	F
1	First Name	Last Name	Phone	Date	Sales	Position
2	Jim	Brown	02 9941 4141	2/05/2015	9561	Part time
4	Tom	Brown	07 7450 1698	26/11/2015	10254	Full time
5	Fred	Flinstone	03 5328 7659	29/10/2014	12859	Full time
6	Sarah	James	07 5896 1254	1/07/2013	7856	Part time
8	Sally	Slicksale	07 7450 1222	1/12/2015	8500	Part time
9	Fred	Whelan	02 9856 2147	18/04/2016	10580	Full time

6. Click on tab **Data➢ Clear** in the ribbon show a complete list

Subtotaling

Excel provides us with an automatic subtotalling feature for use with lists.

1. Click on the **Subtotal** worksheet in the **Lists** file

The Subtotal feature will put subtotals for each particular group of items in a list. For example, as shown below, if we had a list of sales by salespeople we could sort the list so that each record for a particular salesperson was grouped together. Then the list could be subtotalled so the total sales for each salesperson are displayed.

	A	B	C	D	E
1	**Salesperson**	**Product**	**Units**	**Sales**	**Month**
2	Owen	Photocopiers	53	95655	May
3	Owen	Photocopiers	35	33900	June
4	Owen	Printers	26	24650	May
5	Owen	Printers	44	46520	June
6	Owen	Typewriters	23	10580	May
7	**Owen Total**			211305	
8	Phillips	Photocopiers	50	79650	June
9	Phillips	Printers	28	23500	May
10	Phillips	Printers	43	54200	June
11	Phillips	Typewriters	24	8950	May
12	Phillips	Typewriters	42	22510	June
13	**Phillips Total**			188810	
14	Richards	Photocopiers	33	56255	May
15	Richards	Photocopiers	46	91500	June
16	Richards	Printers	35	34900	May
17	Richards	Printers	44	41680	June
18	Richards	Typewriters	22	8950	May
19	Richards	Typewriters	42	15890	June
20	**Richards Total**			249175	
21	**Grand Total**			649290	
22					

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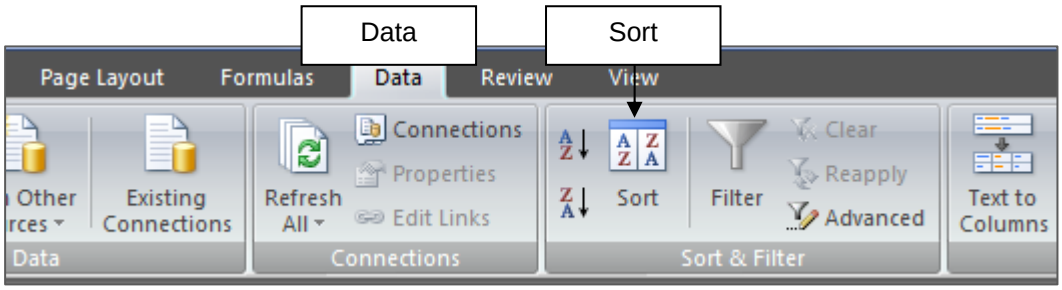
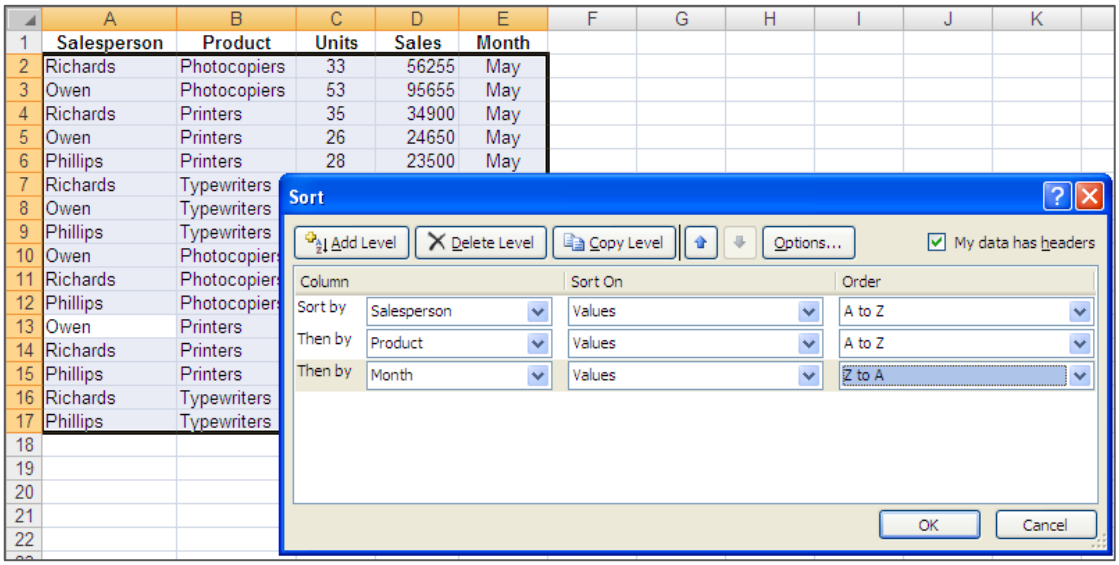
Before using the subtotal function the list should be sorted according to the item for which you want to create subtotals.

2. Click on any cell in the **Salesperson** field
3. Click on the tab **Data ➢Sort**



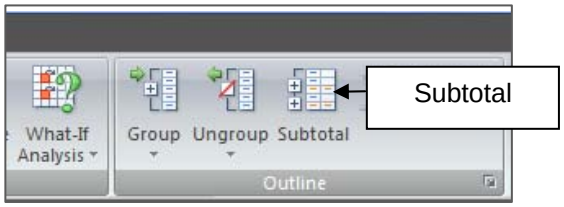
4. Click on the first **Sort by** box droplist button and click on **Salesperson**
5. Click on **Add Level**
6. Click on the droplist button for the **Then by** box and click on **Product**
7. Click on **Add Level**
8. Click on the droplist button for the **Then by** box and click on **Month**
9. Click on the droplist button for **Order** for **Month** and click on **Z to A**
10. Click on **OK** when ready



Once the list is sorted, a subtotal can be calculated for each group.

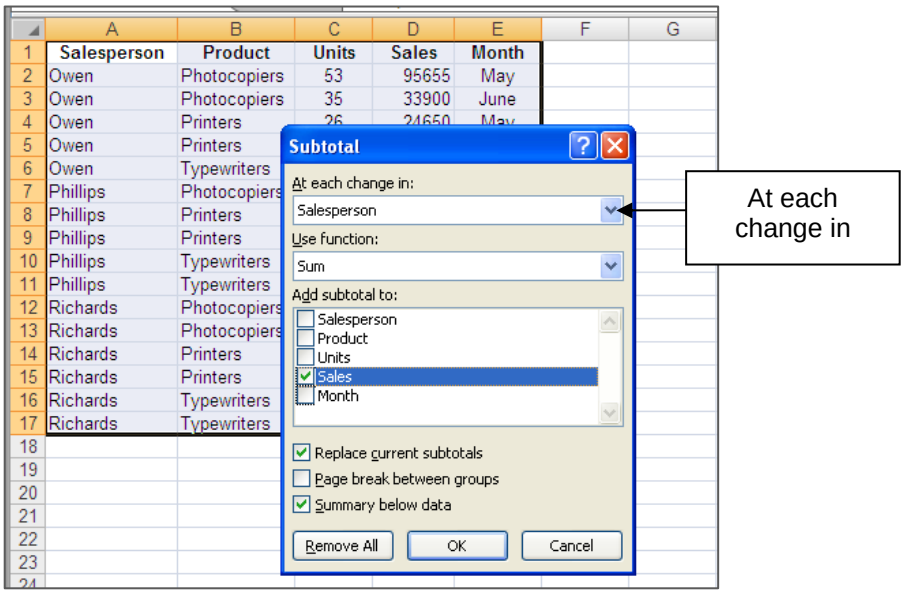
11. Click on any cell within the list

12. Click on tab **Data ➢ Subtotal** in the **Outline** group on the ribbon



The **Subtotal** dialog box will appear, and the whole list will be highlighted as shown below.

The **At each change in** box indicates to Excel how we want the data grouped. Excel assumes we wish to create subtotals for each salesperson as it is in the first column. If we click on the **droplist button** at the end of the box, the other fields will be available to choose.



The **Use function** box contains a list of functions we can use in creating a subtotal. The following functions return a value for each group in a field:

Sum	Adds numeric values
Count	Counts the number of occurrences
Average	Calculates the average
Max	Displays the maximum value
Min	Displays the minimum value

The **Add subtotal to** box contains a list of the fields; the one selected is that which will have the function applied to it. For example; if we want a subtotal of sales we would select Sales here. If we wanted to count the number of sales a salesperson had made we would use the Salesperson field.

13. Click on the droplist button for **Use function** and click on **Sum**

14. Click on **Sales** in the **Add Subtotal to** section and clear the other boxes

15. Click **OK –** turn the page to check the results

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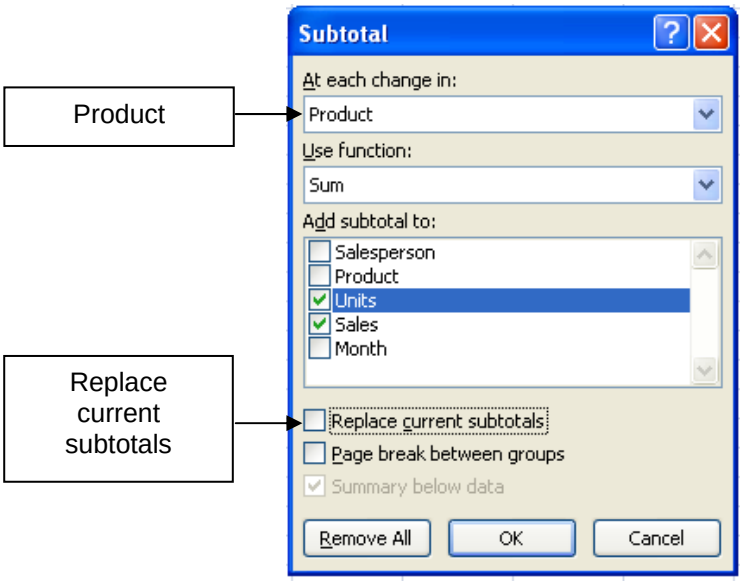
The subtotals appear within the list at each change in salesperson.

	A	B	C	D	E
1	**Salesperson**	**Product**	**Units**	**Sales**	**Month**
2	Owen	Photocopiers	53	95655	May
3	Owen	Photocopiers	35	33900	June
4	Owen	Printers	26	24650	May
5	Owen	Printers	44	46520	June
6	Owen	Typewriters	23	10580	May
7	**Owen Total**			211305	
8	Phillips	Photocopiers	50	79650	June
9	Phillips	Printers	28	23500	May
10	Phillips	Printers	43	54200	June
11	Phillips	Typewriters	24	8950	May
12	Phillips	Typewriters	42	22510	June
13	**Phillips Total**			188810	
14	Richards	Photocopiers	33	56255	May
15	Richards	Photocopiers	46	91500	June
16	Richards	Printers	35	34900	May
17	Richards	Printers	44	41680	June
18	Richards	Typewriters	22	8950	May
19	Richards	Typewriters	42	15890	June
20	**Richards Total**			249175	
21	**Grand Total**			649290	
22					

We can add more subtotals. Suppose we wanted to calculate the number of units of each product type a salesperson had sold. We can still keep the other subtotal information and add this to it.

16. Click on the tab **Data ➢ Subtotals**
17. Click on **At each change in:** and click on **Product**
18. Click on the droplist button for **Use function** and click on **Sum**
19. Click on **Units** in the **Add Subtotal to** section
20. Clear the **Replace current subtotals** box - this keeps the original subtotal of **Sales** on the sheet



Your sheet will now show both **Sales** subtotals and **Units and Sales** subtotals of the number of units sold for each **Product**.

Outline symbols

Notice that the worksheet now has the **Outline** symbols to the left

The **Outline** feature allows us to collapse the worksheet to various levels.

This worksheet has four levels:

- **Level 4** shows the complete list
- **Level 3** shows the subtotals for **Units** for each person
- **Level 2** shows the subtotals for **Sales** for each salesperson
- **Level 1** displays only the **Grand Totals**

	A	B	C	D	E
1	**Salesperson**	**Product**	**Units**	**Sales**	**Month**
2	Owen	Photocopiers	53	95655	May
3	Owen	Photocopiers	35	33900	June
4		**Photocopiers Total**	88	129555	
5	Owen	Printers	26	24650	May
6	Owen	Printers	44	46520	June
7		**Printers Total**	70	71170	
8	Owen	Typewriters	23	10580	May
9		**Typewriters Total**	23	10580	
10	**Owen Total**			211305	
11	Phillips	Photocopiers	50	79650	June
12		**Photocopiers Total**	50	79650	
13	Phillips	Printers	28	23500	May
14	Phillips	Printers	43	54200	June
15		**Printers Total**	71	77700	
16	Phillips	Typewriters	24	8950	May
17	Phillips	Typewriters	42	22510	June
18		**Typewriters Total**	66	31460	
19	**Phillips Total**			188810	
20	Richards	Photocopiers	33	56255	May
21	Richards	Photocopiers	46	91500	June
22		**Photocopiers Total**	79	147755	
23	Richards	Printers	35	34900	May
24	Richards	Printers	44	41680	June
25		**Printers Total**	79	76580	
26	Richards	Typewriters	22	8950	May
27	Richards	Typewriters	42	15890	June
28		**Typewriters Total**	64	24840	
29	**Richards Total**			249175	
30		**Grand Total**	590		
31	**Grand Total**			649290	

21. Click on the **Level 1** button to display only the **Grand Total** for **Sales**

	A	B	C	D	E
1	**Salesperson**	**Product**	**Units**	**Sales**	**Month**
30		**Grand Total**	590		
31	**Grand Total**			649290	
32					

22. Click on the **Level 2** button to display only the **Sales** totals for each salesperson

	A	B	C	D	E
1	**Salesperson**	**Product**	**Units**	**Sales**	**Month**
10	**Owen Total**			211305	
19	**Phillips Total**			188810	
29	**Richards Total**			249175	
30		**Grand Total**	590		
31	**Grand Total**			649290	
32					

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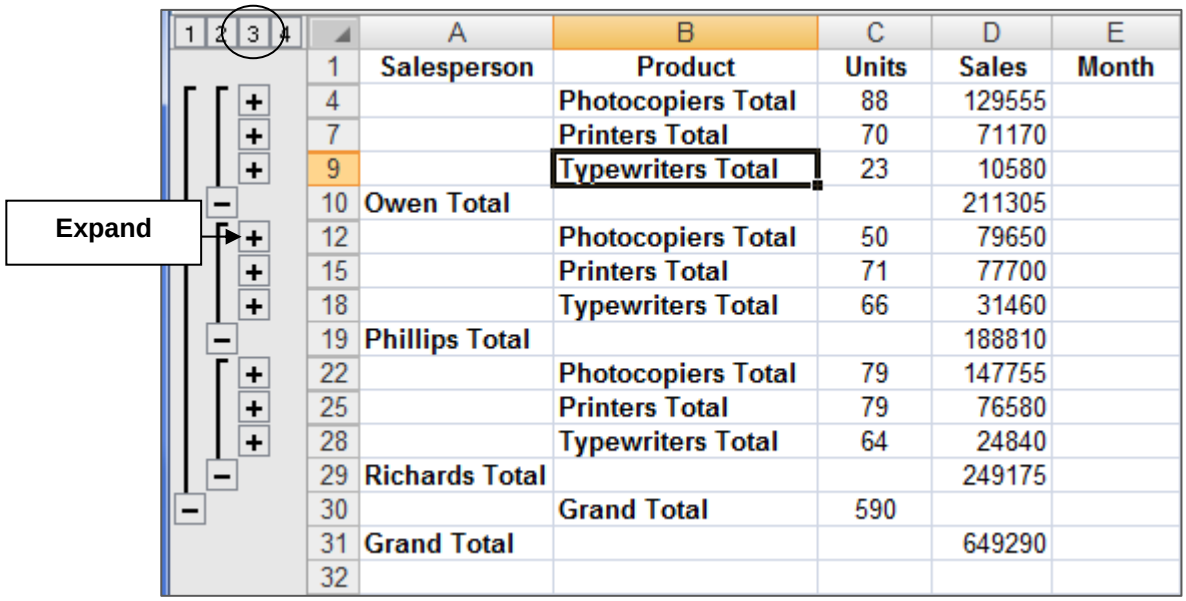
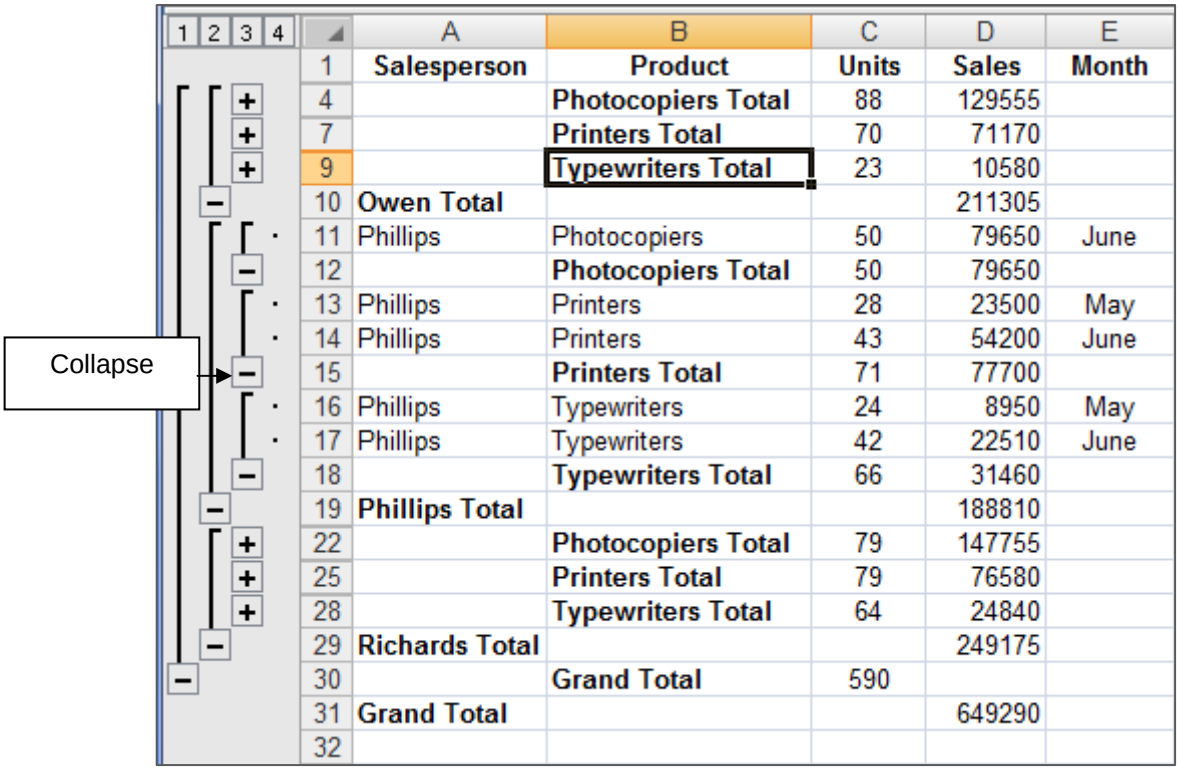
23. Click on the **Level 3** button to display subtotals of **Sales** and **Units** for each **Product** for each **Salesperson**



	A	B	C	D	E
1	Salesperson	Product	Units	Sales	Month
4		Photocopiers Total	88	129555	
7		Printers Total	70	71170	
9		Typewriters Total	23	10580	
10	Owen Total			211305	
12		Photocopiers Total	50	79650	
15		Printers Total	71	77700	
18		Typewriters Total	66	31460	
19	Phillips Total			188810	
22		Photocopiers Total	79	147755	
25		Printers Total	79	76580	
28		Typewriters Total	64	24840	
29	Richards Total			249175	
30		Grand Total	590		
31	Grand Total			649290	
32					

24. Click on the **Plus (Expand)** button for row **12** to display the details for the photocopiers subtotal for Phillips

25. Repeat for row **15** and **18** to display all the details for **Phillips**



	A	B	C	D	E
1	Salesperson	Product	Units	Sales	Month
4		Photocopiers Total	88	129555	
7		Printers Total	70	71170	
9		Typewriters Total	23	10580	
10	Owen Total			211305	
11	Phillips	Photocopiers	50	79650	June
12		Photocopiers Total	50	79650	
13	Phillips	Printers	28	23500	May
14	Phillips	Printers	43	54200	June
15		Printers Total	71	77700	
16	Phillips	Typewriters	24	8950	May
17	Phillips	Typewriters	42	22510	June
18		Typewriters Total	66	31460	
19	Phillips Total			188810	
22		Photocopiers Total	79	147755	
25		Printers Total	79	76580	
28		Typewriters Total	64	24840	
29	Richards Total			249175	
30		Grand Total	590		
31	Grand Total			649290	
32					

As a **plus** or **expand** button is clicked, it becomes a **minus** or **collapse** button.

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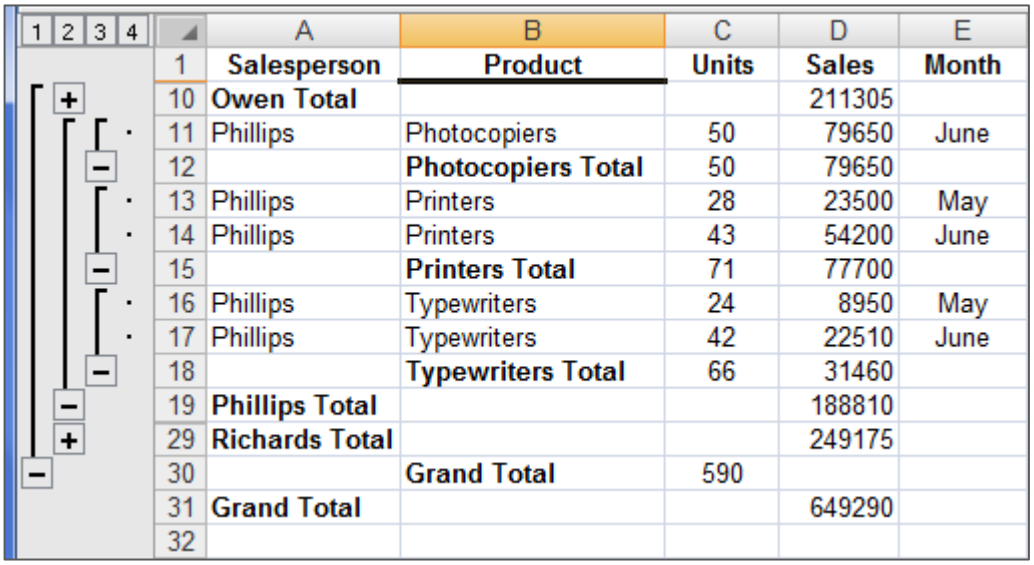
26. Click on the **collapse** button at **row 10** for Owen and **row 29** for Richards to close each of the details for the other salespeople.

Using the **collapse** and **expand** button you can display any combination of subtotals.



	A	B	C	D	E
1	**Salesperson**	**Product**	**Units**	**Sales**	**Month**
10	**Owen Total**			211305	
11	Phillips	Photocopiers	50	79650	June
12		**Photocopiers Total**	50	79650	
13	Phillips	Printers	28	23500	May
14	Phillips	Printers	43	54200	June
15		**Printers Total**	71	77700	
16	Phillips	Typewriters	24	8950	May
17	Phillips	Typewriters	42	22510	June
18		**Typewriters Total**	66	31460	
19	**Phillips Total**			188810	
29	**Richards Total**			249175	
30		**Grand Total**	590		
31	**Grand Total**			649290	
32					

Remove all Subtotals

1. Click on any cell within the list

2. Click on tab **Data ➢ Subtotals** in the ribbon and click on **Remove All**

The list will have the subtotals removed.

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Pivot Tables

Just wait until you can see what you can do with a Pivot Table! No more tedious summarising of endless worksheets and data, the Pivot Table does it all for you.

You can go from this list of data, to this organised pivot table in seconds.

	A	B	C	D	E
1	alespersc	Product	Units	Sales	Month
2	Richards	Photocopiers	33	56255	May
3	Owen	Photocopiers	53	95655	May
4	Richards	Printers	35	34900	May
5	Owen	Printers	26	24650	May
6	Phillips	Printers	28	23500	May
7	Richards	Typewriters	22	8950	May
8	Owen	Typewriters	23	10580	May
9	Phillips	Typewriters	24	8950	May
10	Owen	Photocopiers	35	33900	June
11	Richards	Photocopiers	46	91500	June
12	Phillips	Photocopiers	50	79650	June
13	Owen	Printers	44	46520	June
14	Richards	Printers	44	41680	June
15	Phillips	Printers	43	54200	June
16	Richards	Typewriters	42	15890	June
17	Phillips	Typewriters	42	22510	June
18	Owen	Photocopiers	40	9120	July
19	Phillips	Photocopiers	3		
20	Owen	Printers	3		
21	Richards	Printers	3		
22	Phillips	Printers	3		
23	Owen	Typewriters	3		
24	Richards	Typewriters	3		

	A	B	C	D	E	F
1	Sum of Sales		Product			
2	Month	Salesperson	Photocopiers	Printers	Typewriter	Grand Total
3	May	Owen	95655	24650	10580	130885
4		Phillips		23500	8950	32450
5		Richards	56255	34900	8950	100105
6	May Total		151910	83050	28480	263440
7	June	Owen	33900	46520		80420
8		Phillips	79650	54200	22510	156360
9		Richards	91500	41680	15890	149070
10	June Total		205050	142400	38400	385850
11	July	Owen	9120	8950	97650	115720
12		Phillips	10654	91500		102154
13		Richards		35869	46520	82389
14	July Total		19774	136319	144170	300263
15	Grand Total		376734	361769	211050	949553

A pivot table is most useful when data within some of the columns is out of a few values, eg the product is one of three machines, the salesperson is either Owens, Phillips or Richards. The pivot table can be summarised easily around these distinctive categories.

Pivot tables work best with lists of data where there is a clear list of records with obvious headings as in the list above.

The headings of each column are used to organise the data into a summary.

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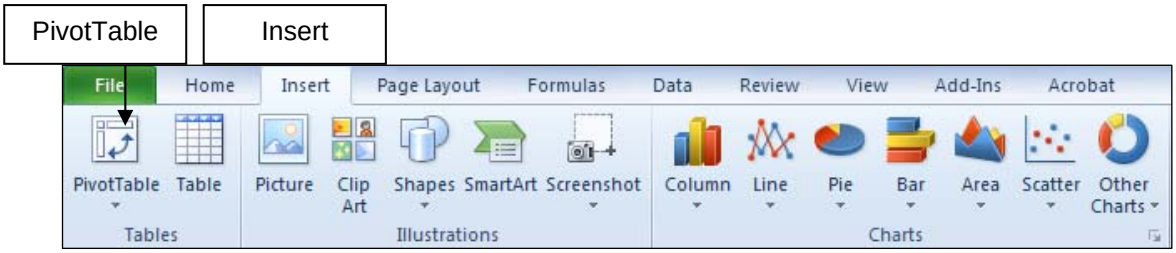
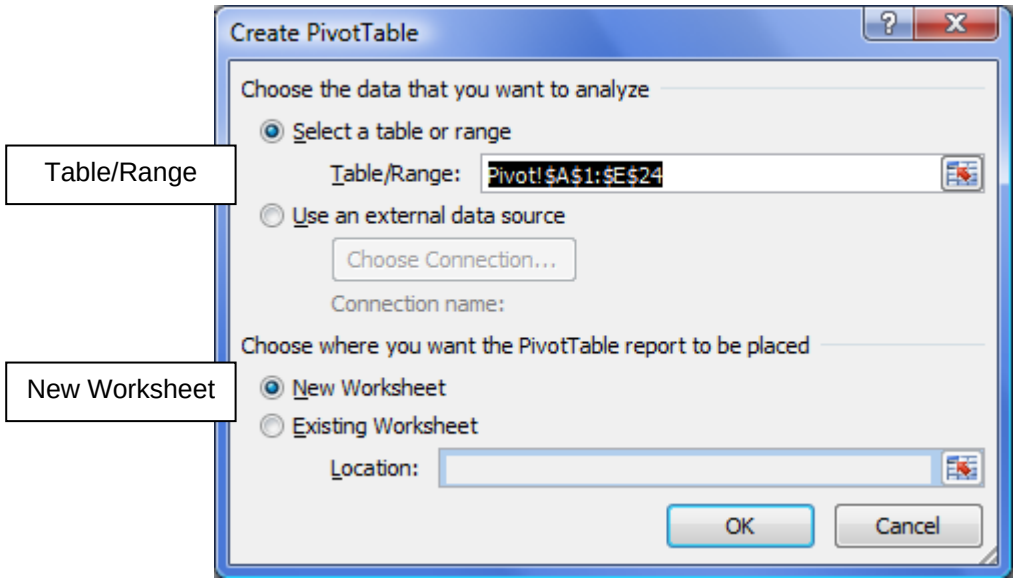
Create a Pivot Table from a List

Now we will create our own pivot table.

1. Click on the **Pivot** worksheet in the **Lists** file
2. Select any cell in the list
3. Click on the tab **Insert** ➢ **Pivot Table** in the ribbon



4. Check that the whole list is selected and the correct cell range is in the **Table/Range** box
5. Check that **New Worksheet** is selected so the new Pivot Table is put into a separate worksheet
6. Click on **OK**



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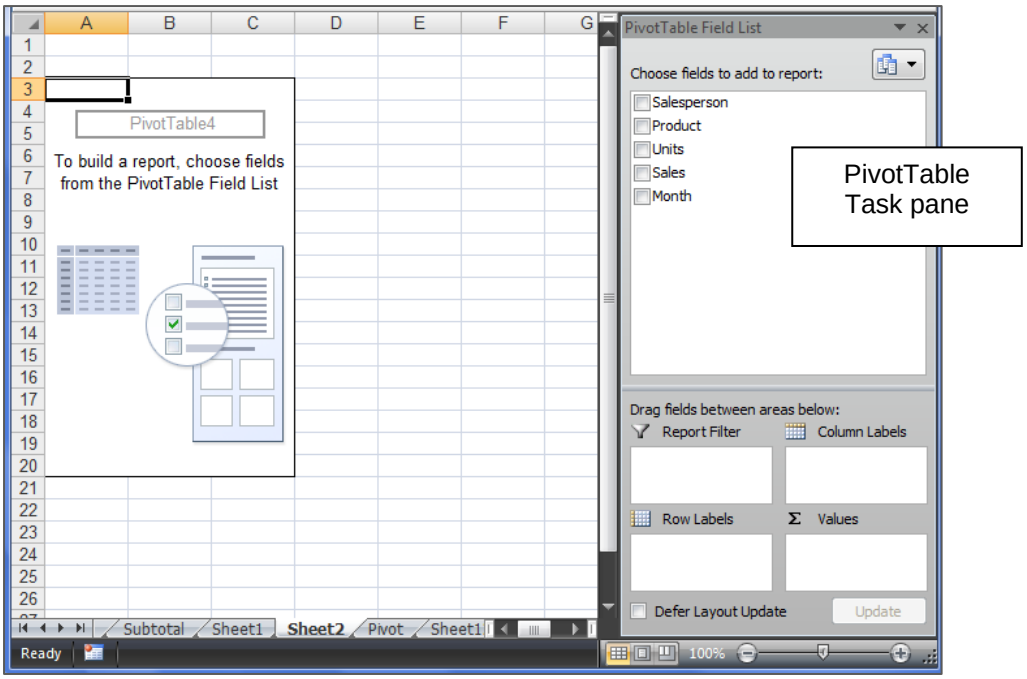
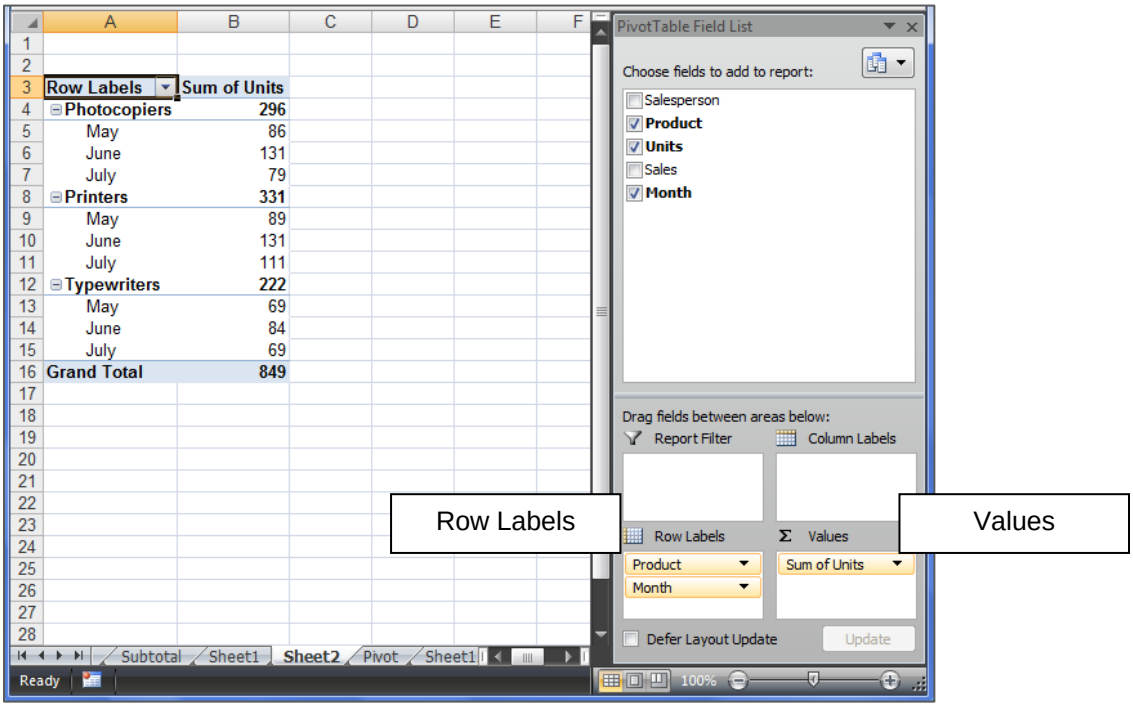
The new worksheet will be displayed and the PivotTable task pane is opened as shown below. Notice that the Task pane lists the fields from the original table. The lower part of the task pane is used to organise the structure of the PivotTable. The PivotTable task pane is only displayed while the active cell is within the pivot table.



The order you add fields to the structure determines the layout of the PivotTable.

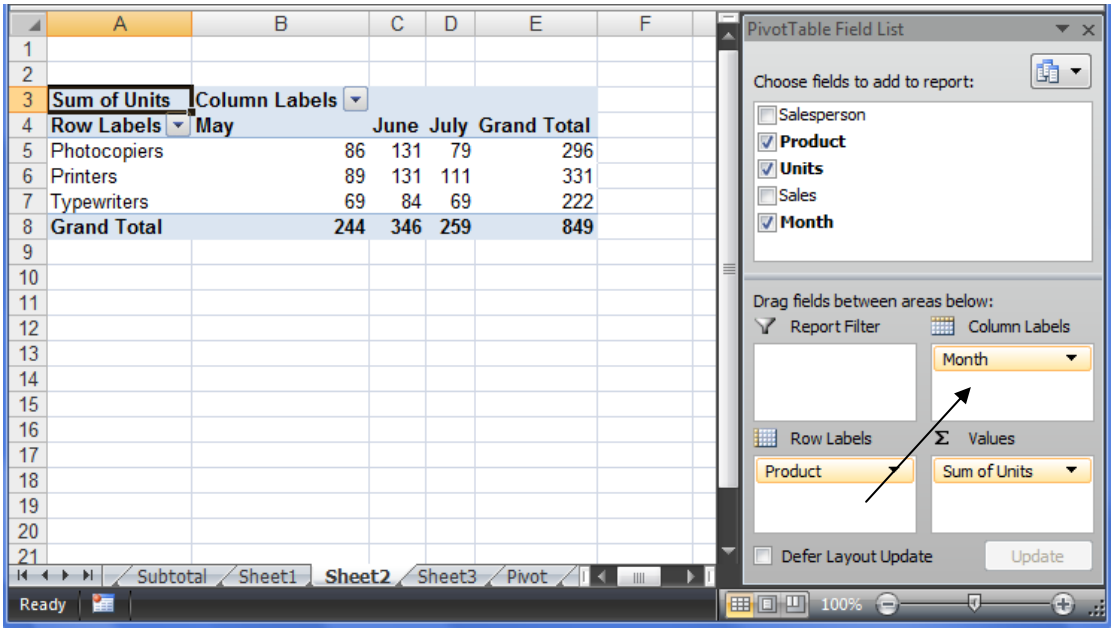
7. Click on the field **Product**, then **Month –** they will automatically be put in the **Row Labels** box

8. Click on the field **Units** – it will automatically be put into **Sum Values**



9. In the Pivot Table Task Pane drag the **Month** field button from the Row **Labels** over to the **Column Labels** box

Your **PivotTable** should appear as follows summarising the number of units sold for each product in each month.



Practice Exercise 1.10: Creating a Pivot Table

Now to create another pivot table which summarises the monthly dollar value of sales by each salesperson for each product.

1. Select the **Pivot** worksheet to move back to the list

2. Click on any cell in the list

3. Click on tab **Insert ➢PivotTable** in the ribbon

4. Check that the whole list is selected and the correct cell range is in the **Table/Range** box

5. Check that **New Worksheet** is selected so the new Pivot Table is put into a separate worksheet

6. Click on **OK**

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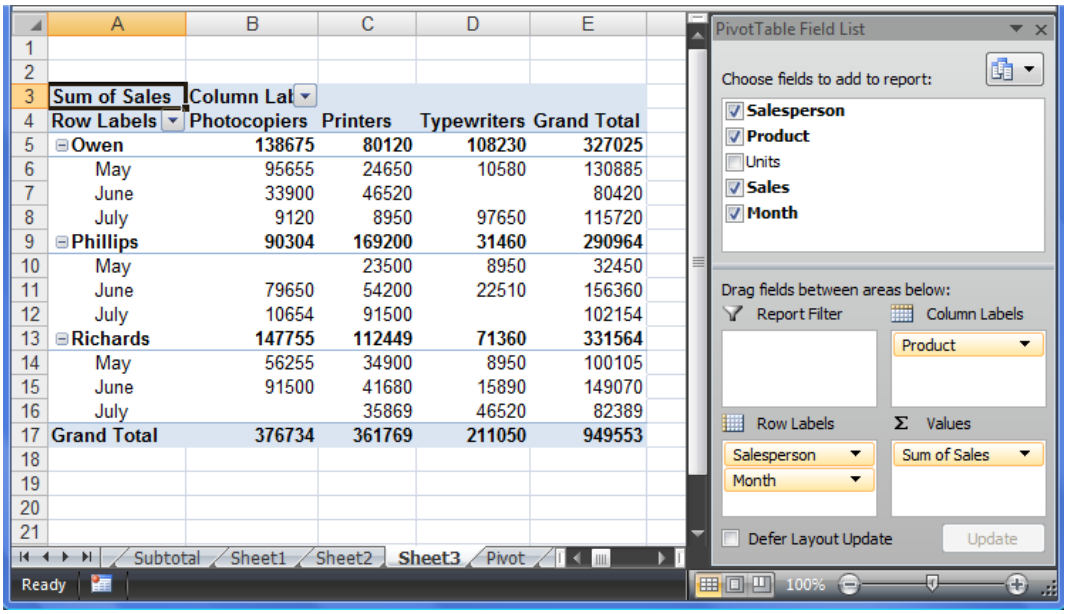
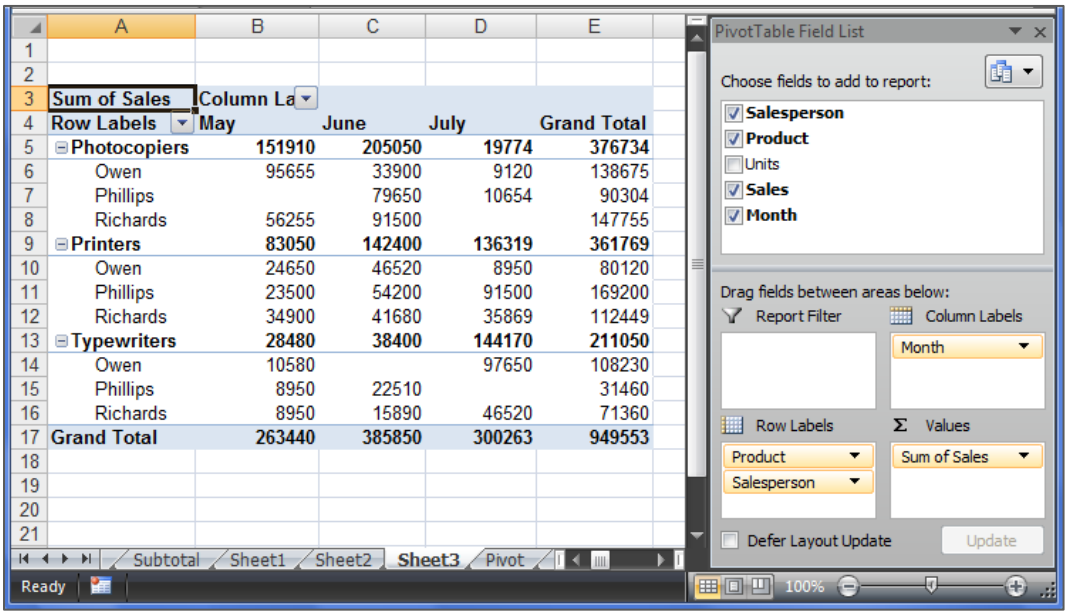
7. Click on the fields in this order: **Salesperson, Month, Product**, – they will automatically be put in the **Row Labels** box
8. Click on the field **Sales** – it will automatically be put into **Sum Values**
9. Drag the **Product field** over to the **Column Labels** box

Your table should appear as below.



10. Drag the button for **Month** to appear after **Product**.
11. Drag the button for **Product** to appear before **Salesperson**

Now the data will be summarised by product, then by salesperson for each month. Your **PivotTable** should appear as follows:



12. **Save** the file and close

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